CHAPTER ONE:

WATERSHED OVERVIEW

Introduction

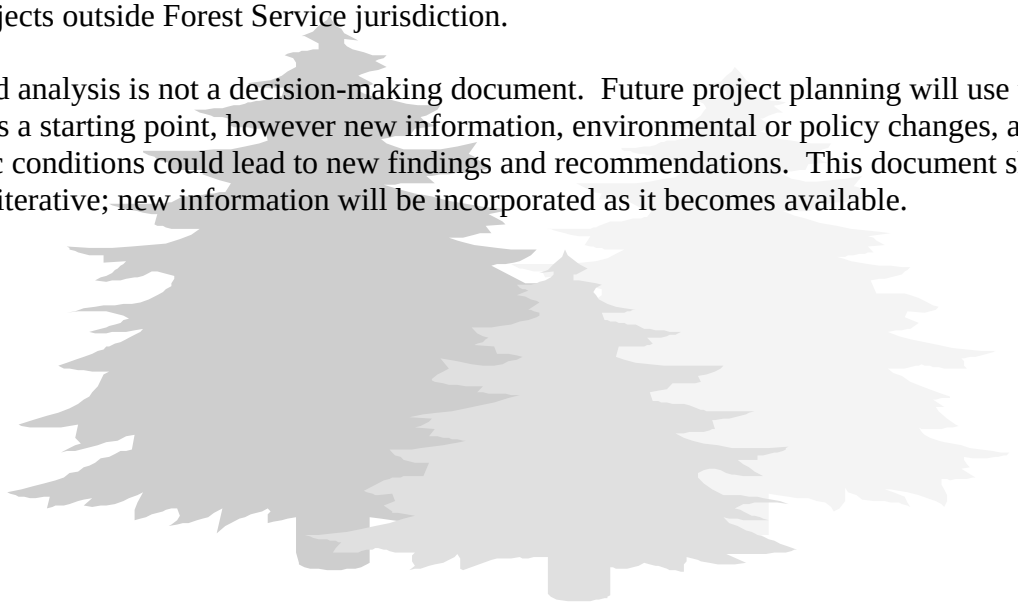
The Siuslaw National Forest has prepared this Beaver Creek Watershed Analysis as required within the Northwest Forest Plan (NFP – USDA/USDI 1994). The Northwest Forest Plan was developed to maintain and restore the ecology of federal lands within the range of the northern spotted owl, focusing on older forests (Late Successional Reserves) and watershed health (Aquatic Conservation Strategy – ACS). Watershed analysis is intended to:

- Provide site-specific information to meet ACS objectives in future project planning
- Provide the basis for restoration and monitoring programs for terrestrial and aquatic species,
- Provide the foundation from which Riparian Reserves (streamside zones) can be delineated.

This watershed analysis discusses the ecological processes at work in the Beaver Creek watershed, focusing on two resources: older forests and coho salmon. The analysis compares pre-settlement and current conditions, identifies important natural processes, and evaluates human impacts within the watershed.

This watershed analysis generally follows the outline described in the updated Federal Guide for Watershed Analysis - Ecosystem Analysis at the Watershed Scale (Federal Guide - Version 2.2, August 1995). Recommendations for maintaining/restoring natural processes on National Forest lands are included to help guide future project planning. Opportunities for restoration on private land are also discussed; private landowners and other organizations can use this information to support projects outside Forest Service jurisdiction.

A watershed analysis is not a decision-making document. Future project planning will use this document as a starting point, however new information, environmental or policy changes, and/or site-specific conditions could lead to new findings and recommendations. This document should be considered iterative; new information will be incorporated as it becomes available.



The Late-Successional Forest

Late-successional forest habitat within the Beaver Creek watershed is recovering from 100 years of agriculture, residential development and logging. Late-successional forests currently occupy about 31 percent of the watershed. A very low 1 percent of the watershed provides interior (unfragmented) forest habitat.[1]

A Coho Stronghold

Coho salmon, a species recently listed as threatened under the Endangered Species Act[2], is the single most important resource in the Beaver Creek watershed. Beaver Creek has many special characteristics that make it one of the last strongholds on the Oregon Coast for coho:

- The stream has a high proportion of low-gradient, slow flowing reaches and estuarine areas that are preferred coho rearing habitat.
- The watershed is relatively intact, with little urban development, low recreational use and moderate amounts of logging.
- Beaver Creek has not been heavily fished, and has not had releases of hatchery coho to supplement or sustain the fishery.

These characteristics increase the Beaver Creek watershed's potential as a refuge that can provide stock for native coho recovery in local streams. Federal lands in the North Fork of Beaver Creek are designated as a Key Watershed in the Northwest Forest Plan, making it a high priority for maintenance and restoration of aquatic habitat and species. Lower reaches of the Beaver Creek Watershed are also designated as Critical Habitat for coho.

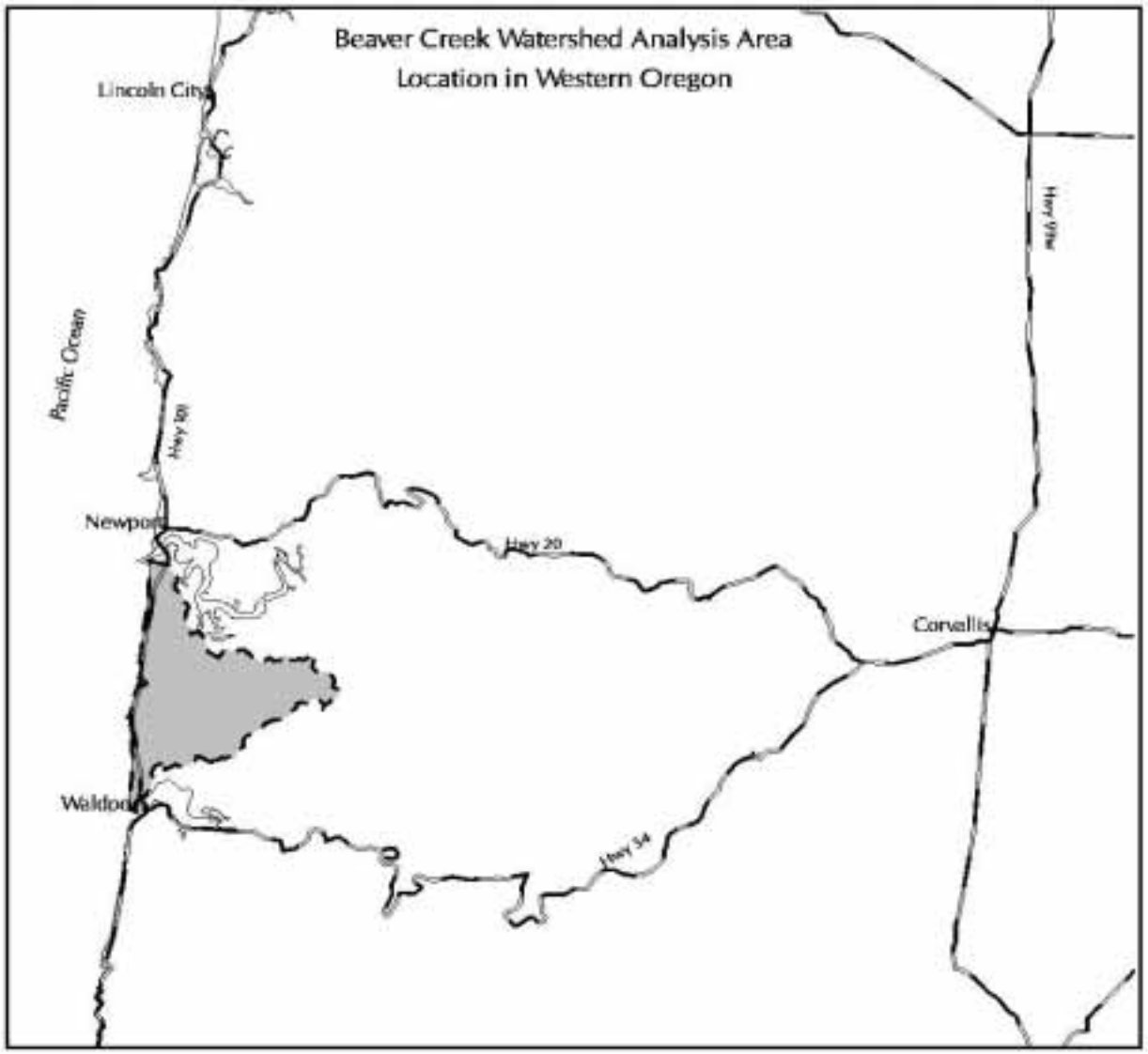
Location And Size

Beaver Creek is a 32,500-acre, 5th field watershed that lies between Yaquina Bay to the north, and Alsea Bay to the south (see Map 1: Vicinity). The mainstem of Beaver Creek reaches the ocean at Ona Beach.

The Beaver Creek watershed analysis area is divided into seven subwatersheds; three of these drain directly into the Pacific Ocean, and are not connected to Beaver Creek.

[1] Late-successional forest is a generic term that includes mature conifer forests and old growth. It is used interchangeably with the terms "older forests" or "mature forests".
[2] Endangered Species Act listing is uncertain following recent litigation.

Map 1: **Vicinity**



Named streams that are part of the Beaver Creek stream system include: Peterson, Lewis, Bowers, Tracy, Simpson, Pumphouse, Bunnel, South and North Forks of Beaver, South and North Forks and mainstem Elkhorn, Graves, Worth and Oliver Creeks. Named creeks within the analysis area that flow directly to the Pacific Ocean include: Thursday, Friday, Collins, Buckley, Fox, Squaw, Hill, Deer, Lost, Thie, Grant and Henderson Creeks. Named creeks are shown on Map 5: Geomorphic Stream Segments.

Land Ownership

Table 1: Land Ownership

	BLM	USFS	Total Federal	State and Local Gov't	Private Industrial Forest	Other Private	Total Private	Grand Total
Acres	330	11,313	11,643	908	8,500	11,469	19,969	32,500
% of Federal	3	97	--	--	--	--	--	--
% of Private	--	--	--	--	43	57	--	--
% of Total Landbase	1	35	36	3	26	35	61	100

Land Ownership is shown on Map 2.

Federal Land Use Allocations

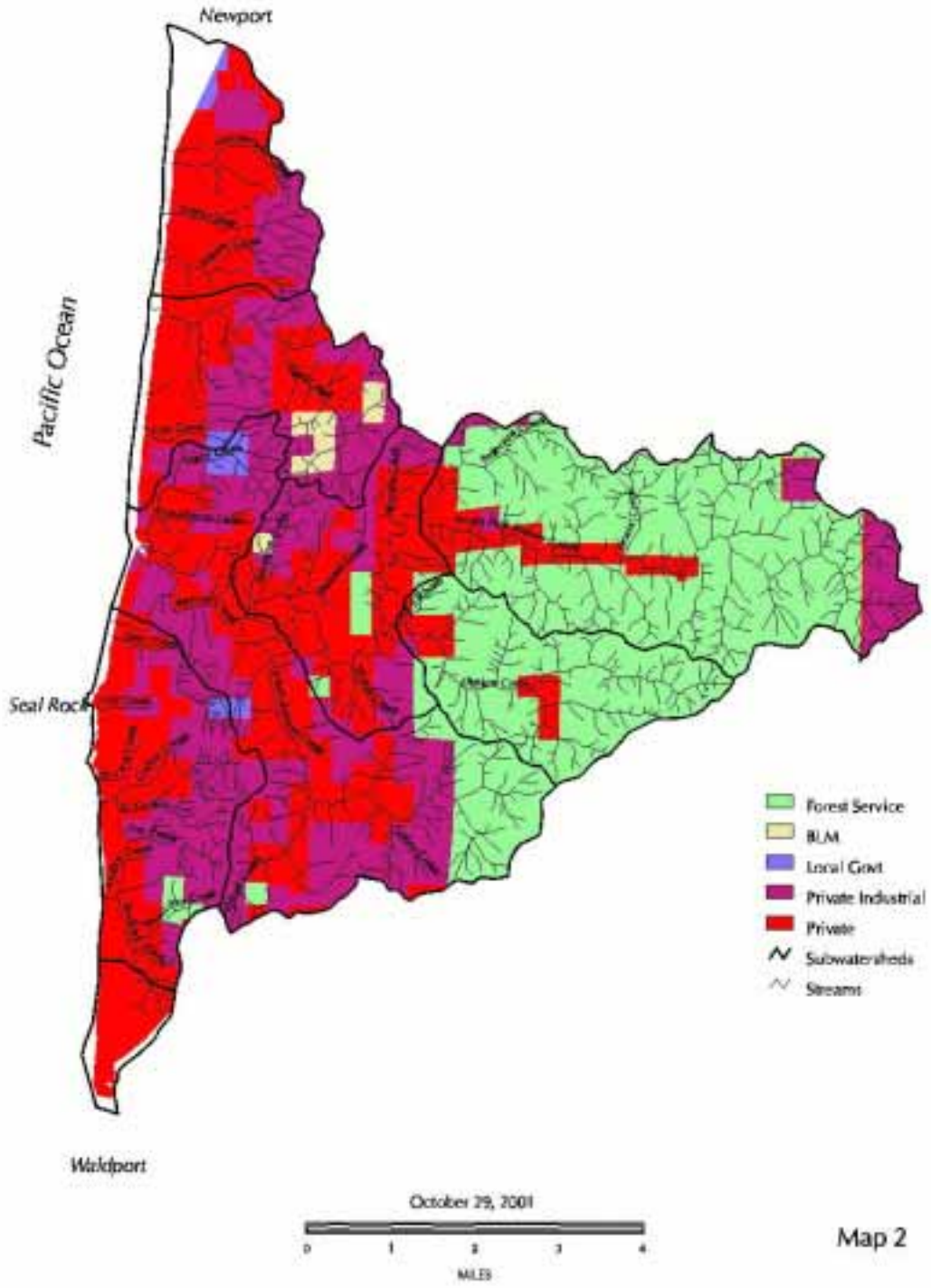
Key Watersheds

The North Fork of Beaver Creek is designated as a Key Watershed by the NWP, because of its relatively intact landscape and high quality coho habitat. Key Watersheds are prioritized for restoration and maintenance and are associated with specific standards and guidelines.

Late-Successional Reserves

Approximately 97 percent of the federally managed lands in the watershed are allocated to Late-Successional Reserve (LSR) based on the Northwest Forest Plan (see Table 2). The objective of this land use allocation is to protect and enhance conditions of late- successional and old growth forest ecosystems, which serve as habitat for late-successional and old-growth related species including the northern spotted owl. Occupied marbled murrelet sites are also included in this land use allocation. These areas protect all existing and recruitment habitat (i.e. stands capable of becoming marbled murrelet habitat within 25 years) within a 0.5-mile radius of documented occupation areas.

Beaver Creek Watershed Analysis Area
Land Ownership



Map 2

Riparian Reserves

Riparian Reserves were established in the Northwest Forest Plan to protect streams, rivers and other water bodies, and to ensure dispersal habitat for species dependent on aquatic and late-successional forest conditions. Eighty percent of the federal lands within Beaver Creek watershed are estimated to be within Riparian Reserves.

Matrix

Isolated portions of Siuslaw National Forest were allocated to Matrix in the Northwest Forest Plan, however much of this area is also within Riparian Reserves and managed accordingly. The upland acreage within Matrix and outside Riparian Reserves (less than 1 percent of the watershed) is small, scattered and not considered manageable for timber.

Table 2: Land Use Allocation

LAND USE ALLOCATION	BLM Acres (Percent)	USFS Acres (Percent)
LSR/Riparian Reserve	**100%**	**97%**
Riparian Reserve outside LSR	**80%**	**3%**
Matrix	**0%**	**<1%**

The Lower Reaches

The most valuable coho habitat in the watershed is within the privately owned, low-gradient stream reaches lower in the system. Agricultural use has led to stream channelization and straightening; draining of wetlands; removal of riparian vegetation and large wood; and other actions that degraded the coho habitat. Restoration of these low gradient reaches would increase the value and production of coho salmon in Beaver Creek.

Many groups and individuals are involved in watershed restoration on the low-gradient reaches. The following section summarizes existing projects within the area. Additional recommendations from groups working on the private lands are in Chapter Two, and Chapter Four lists a number of programs to assist the restoration effort.

Wetlands Conservancy

Some restoration and protection actions have already occurred or are currently proposed on private land. The Wetlands Conservancy established the 77-acre Estella Matilda Happ Memorial Wetland[3] in the lower portions of main Beaver Creek (depicted on Map 5). The wetland contains ponds, marshes, sloughs, and tidewater areas where salt and fresh water mix. An unusual grove of dead, flooded spruce stands within this parcel. The Wetlands Conservancy is interested in acquiring more property on Beaver Creek and its tributaries (Zeke, Hollowell and Keady Properties on Beaver Creek and Simpson Creek – maps on file at the Siuslaw NF). The Wetlands Conservancy has also proposed some restoration projects on South Fork Beaver Creek in Section 33 (see restoration recommendations on private land in Chapter Two).

The Wetlands Conservancy was also instrumental in developing a pre-settlement vegetation map (see Map 3 in this document), which will be useful in planning and prioritizing future watershed restoration projects. For more information about the historic map or the Wetlands Conservancy, contact: Esther Lev, Wetlands Conservancy 503-239-4065, estherlev@wetlandsconservancy.org.

Mid Coast Watersheds Council

The **Mid-Coast Watersheds Council 6th Field Watershed Assessment** was completed in July 2001 (hereafter referred to as: 6th Field Assessment). The report is available by contacting Wayne Hoffman, 541-265-9195 and is viewable and downloadable from the council's website at www.midcoastwatershedcouncil.org.

The document assesses watershed conditions at the 6th field scale for numerous watersheds along the Oregon coast, including Beaver Creek watershed. Based on rankings of current conditions and future potential, the report prioritizes watersheds for restoration actions. Three stream reaches within Beaver and South Beaver Creeks are identified as having high priority for large woody material placement and other restoration measures.

Floodplain restoration opportunities are also identified in the 6th Field Assessment. Beaver Creek contains more miles of potential floodplain restoration than any other mid-coast watershed assessed. High potential areas are low-lying with wet soils, have stream segments longer than 500 meters, and are currently zoned for land uses compatible with floodplain restoration.

Oregon Watershed Enhancement Board

A database maintained by the Oregon Watershed Enhancement Board (OWEB) contains information on three different projects implemented in the Beaver Creek watershed since 1997. Contact Bobbi Riggers at OWEB, 541-757-4263 x235, for more information about how to access the database. In addition, an application was submitted and conservation plan written for a private parcel located upstream of and adjacent to the Happ Wetland on Beaver Creek. The plan was ranked as a low priority for program funds (and was not implemented) because summer grazing was to continue on the property. The three projects are described on page 8.

[3] Also known as "Zeke's Marsh"

A. North Beaver Creek, SW ¼ section 22, downstream of Elkhorn confluence

A riparian planting project began in 1995 along 1100 feet of North Beaver Creek was designed to determine the effectiveness of different widths of riparian tree buffers on providing shade to the channel. No direct temperature data was collected due to the short length of channel treated, however, the project has been closely monitored and results are planned for publication in the near future.

Preliminary data indicates very good survival of alder, hybrid poplar, and cedar plantings where adequate protection from grazing and weed control was provided. In 2000, the trees averaged 21 feet tall, with some as tall as 31 feet. A buffer width of six trees on the south side of the stream shaded 94 percent of the channel. A buffer of one tree effectively shaded 73 percent of the channel. In the summer of 2001, the plantings were thinned from their initial spacing of 5' to a spacing of 10-12'. Contact Bill Rogers, OSU Extension Service, 541-574-6534, for more information about this project.

B. North Beaver Cr ¼ mile, both sides of creek

A riparian area was fenced in 1995 to reduce livestock trampling and increase vegetation along the creek. No planting was done. Casual monitoring indicates the bank condition and the vegetative cover have improved. Contact: Lance Gatchell, Lincoln Soil and Water Conservation District, 541-265-2631, for more information about this project.

C. Alder Creek tributary to South Beaver, section 3

A project involving riparian planting and addition of large woody debris was implemented on private land in 1999 as mitigation for wetland fill and channel relocation caused by a Lincoln County road widening project. The riparian planting was monitored in summer 2001. The best success seemed to be with large (2-3") diameter willow cuttings of short length. This finding will be applied to future riparian planting projects.
Contact: Lance Gatchell, Lincoln Soil and Water District, 541-265-2631, for more information.

Beaver Creek Concerned Citizens

The "Concerned Citizens for the North Fork Beaver Creek Forest Preserve" have submitted a petition including 53 signatures of residents of Seal Rock and other nearby communities. The proposed Forest Preserve contains about 125 isolated acres of Siuslaw National Forest. The property lies about one quarter mile west of the confluence of Elkhorn and North Beaver Creeks. The residents request that the land be protected in perpetuity from logging, hunting, trapping, and never to be sold or traded. The group is pursuing purchase of the 160 acres of the Kingset property on Elkhorn Creek and proposes trading it with the Forest Service so that they could acquire the "North Fork Preserve." Maps of these properties are in on file at the Siuslaw National Forest Headquarters and Waldport Ranger District office.